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U.S. DEPARTMENT OF AGRICULTURE-FOREST SERVICE
PACIFIC SOUTHWEST FOREST AND RANGE EXPERIMENT STATION
Division of Forest Insect Research

FOREST INSECT CONDITIONS
HOWELL MOUNTAIN, NAPA COUNTY
APPRaisal SURVEY

By
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Introduction

On March 24 an inspection of the Howell Mountain area, including the town of Angwin, was made by Galen Trostle of the California Forest and Range Experiment Station in cooperation with two California Division of Forestry representatives, Dan Dotta and Geoffrey Snow. The purpose of this inspection was to appraise the biological significance of a number of insect-killed ponderosa pine. Recently killed trees previously had been discovered and reported in detection report No. 44-59. The location of these trees was mapped (see map) by State personnel. The numbers and grouping of infested trees indicated that an outbreak might be developing.

Insect and Host Species

It was found that the California five-spined engraver (Ips confusus (Lec.)) and the western pine beetle (Dendroctonus brevicomis Lec.) were attacking ponderosa pines in this area and causing all or part of the crowns to fade. In addition numerous flagged twigs were found. These may have been the work of the small western pine engraver (Ips latidens (Lec.)). This engraver was found infesting fresh cut logs, but could not be related to the damaged twigs because they were too high to sample.

Infestation Area

The timber on Howell Mountain exhibits marginal site characteristics: the trees are in heavy competition with brush; they grow rapidly until they are about 20 inches d.b.h., then they begin to stagnate. Ponderosa pine is mixed with oaks, Douglas-fir, incense-cedar, but most of the competition comes from brush species. Much of the land has been recently cleared and subdivided.

Status of the Infestation

The insect situation did not seem serious. Local State officials have encouraged landowners to treat their own trees. Although 64 dead trees were originally mapped, it appeared that about half of the trees had already been cut. Only three standing trees were found which showed evidence of western pine beetle attack. One of these was attacked lightly on one side at about 5 feet from the ground. On the other two, the attacks were out of reach.

The majority of damage is being done by the engraver beetles. For the most part the needles in the upper one-third of the crown of affected trees were red. These faded late last year and the tips of the trees are now abandoned. The middle crowns are just fading and are yellowish green in color. These are currently infested. Most trees have not yet been attacked in the lower crown and the lower bole is still green.

Discussion

The Howell Mountain infestation is similar in many ways to the infestation near Middletown in Lake County.^{1/} The warm, dry weather last fall and this spring has probably been a contributing factor to the outbreak. Logging, although often one of the most common factors leading to engraver outbreaks, is confined to such a small area on Howell Mountain that it is probably of little significance. On the other hand, land clearing done in conjunction with subdividing and constructing new homes in forest areas can have the same effect as logging. Such an attractant could only account for the groups occurring near new houses.

The California five-spined engraver does not normally continue to infest standing trees generation after generation. The engraver beetle outbreak at Howell Mountain can, therefore, be expected to subside, provided there is no accumulation of slash in which it can be carried through. The danger lies in the ability of the western pine beetle to infest and breed up in trees weakened by engraver top-killing. Western pine beetle infestations can and often do cause extensive mortality in standing timber once outbreaks get started. Thus far, however, the western pine beetle does not seem to be much of a problem on Howell Mountain.

Control

Several groups of pines infested with five-spined engraver occur in the vicinity of homes. Owners who wish to prevent further losses are confronted with two important questions: (1) When will cutting an infested tree do the most good, and (2) what should be done with the tree after it is cut?

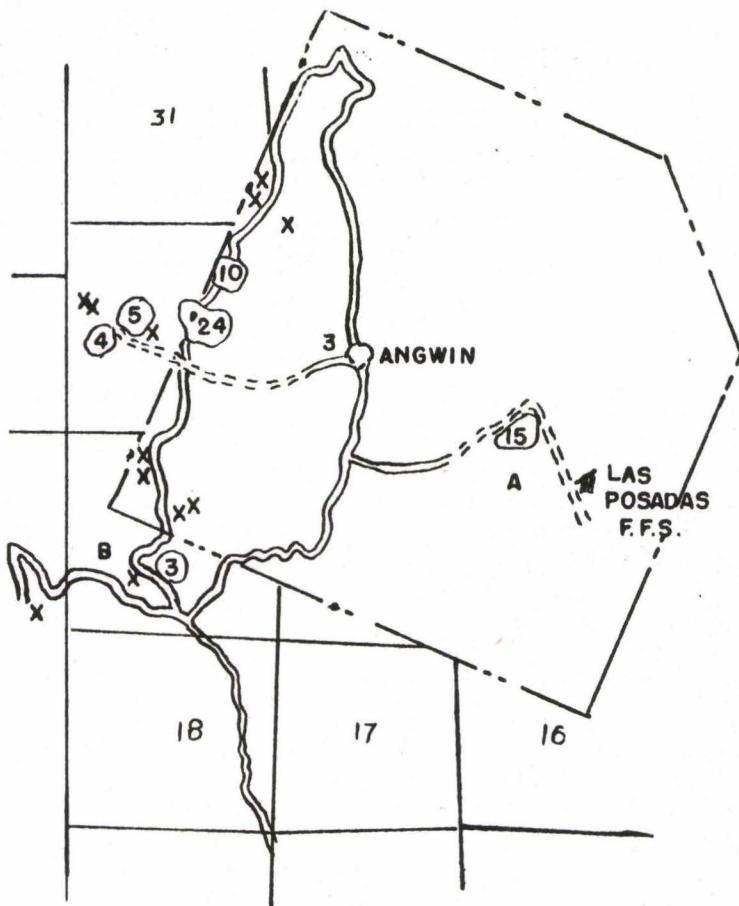
Since the broods are out of reach and cannot be readily examined, the answer to the first question must be derived from knowledge of the biology of the insect. To cut all infested or partly infested trees may result in destroying some trees which would survive. It is not uncommon for engraver outbreaks to suddenly subside. When this happens trees that are top-killed may survive and never be further damaged. Once a tree has been attacked, however, engraver beetles are more likely to reattack it at a lower level than to attack a neighboring tree. For this reason, it is probably best to wait until the lower crown shows evidence of attack before the tree is cut.

^{1/} Hall, R.C. Forest Insect Conditions, Middletown Area, Lake County, Reconnaissance Survey, December 1958. Calif. Forest & Range Expt. Sta., Berkeley, Calif. January 29, 1959. 4 pp.

The second question is much easier to answer, for definite steps can be taken to ensure good control. These steps are outlined in Experiment Station publications on the use of ethylene dibromide and lindane for the control of the five-spined engraver beetle. Copies of these instructions are available on request. Suppression of engraver beetle outbreaks can be expected to reduce the damage to tolerable levels, but it will not, of course, eliminate the insect completely.

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Attachment



HOWELL MT. INSECT ACTIVITY - 1958

Surveyed by Martinelli-Spharler
 February 1959
 Calif. Division of Forestry
 Drawn by Spharler
 Scale: 1: 62500

- ✗ Beetle-killed tree.
- 6 Group of six beetle-killed trees.
- A 1958 logging area.
- B 1958 burned area